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| FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081 | | | EXAMINER ZAHEDIAN TAJNAKI, GHOLAMREZA | |
| | | | ART UNIT 2666 | PAPER NUMBER |
| | | | DATE MAILED: 12/16/2003 | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/813,099

Applicant(s)

SAINT-HILAIRE ET AL.

Examiner

Zahedian-Tajniki GholamReza

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2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to because of the following informalities:

Fig.1: DHCP Server should be labeled with --23-- instead of 29.

Links between 20a --28a, 28a-24, 20n-28a, 26a-28n, 28n-24, and 26n-28n should be labeled with -- 30--.

Further, Fig.1 shows the home-agent is connected to networks 28a and 28n with two separate interfaces. The specifications state that networks 28a and 28n can be, but are not limited to, the Internet, local area network (LAN), or wireless LAN (see page 2 lines 18-20). If indeed networks 28a and 28n are representing the Internet, the reason for showing them as two separate networks is not clear. Further the reason for the Home-agent having two separate interfaces each connecting the home-agent to networks 28a and 28n is not clear. If indeed networks 28a and 28n are physically separate networks and the home-agent is interconnected to these networks with separate interfaces, the disclosure should clearly disclose this requirement. Therefore, the diagram should clearly show the type of connectivity between the mobile-device, networks 28a, 28n, home-agent, and servers 26a, 26n.

Fig.2: Memory 34 should contain RA and HA instead of RA and RA.

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A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

Page 7 line 16: "then" should be replaced with -- than --.

Page 9 line 13: "28a, 28n" should be replaced with -- 28a --.

Page 9 lines 12-13: The disclosure cites the use of a "standard roaming protocol -- registration message -- without providing any further details. The specification must state (by citing a reference or protocol name) whether this protocol pertains to a wireless roaming protocol (i.e., hand off of a wireless terminal between wireless base stations) or roaming protocols used in the Internet such as one defined in IETF RFC2477. No new matter should be introduced.

Page 10 lines 23-24: "header 500" should be replaced with -- application-data-segment 500 -- as defined on page 10 line 10.

Page 11 lines 16-17: "headers 500 and 502" should be replaced with -- application-data-segment 500 and header 502 --.

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Page 12 lines 6-7: "the various headers 500-506" should be replaced with
-- application-data-segment 500 and the various headers
502-506 --.

Page 12 lines 19-20: "the original headers 500, 502, and 504" should be
replaced with -- application-data-segment 500 and the
original headers 502 and 504 --.

Page 13 lines 17-18: "the HA of the mobile-device 20a" should be replaced with
-- the HAA of the home-agent 24 --.

Appropriate correction is required.

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required:

The specification does not provide sufficient antecedent basis for claims 23-24. The specification discloses "each mobile device 20a, 20n is assigned a real-address (RA) 21a, 21n by a dynamic host configuration protocol (DHCP) server 23 and a home-address (HA) 23a, 23n by the home-agent 24" (see page 3 lines 2-5). However, base claim 23 and its dependent claim 24 recites an article that assigns a "home-address", a "first-real-address", and a "second-real-address" to a mobile device.

Claim Objections

4. Claims 3-4, 9, 11, 14-18, 23, and 25-27 are objected to because of the following informalities:

Claims 4, 9, 11, 14-18, 23, and 25-27 use inconsistent terminology. The above claims use "home-device-address" and "home-device" instead of home-agent-address and home-agent.

Claim 3: "the communication path through the mobile-device" should be replaced with - - the communication of the mobile-device - - or - - the communication path through the home-device when the mobile-device moves from the --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an

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application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-8 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Inoue et al (hereinafter Inoue), U.S. Patent No. 6,510,153.

Regarding claim 1: the step of establishing a communication path is anticipated by Inoue. When a mobile computer moves from its home network to another network, it registers its new location with its home-agent. When this registration message is received, the transmission of data destined to the mobile computer is realized by capturing it by the home-agent of the mobile computer, and carrying out the data routing control with respect to the mobile computer (see column 1, lines 56-63).

The step of maintaining the communication path through the home-device when the mobile-device moves to a second-communication-area is anticipated by Inoue. The reference discloses that when the mobile computer (mobile-device) visits a new location ("second-communication-area), it repeats the process of registration by informing the home-agent (home-device) of its new location. After this step, the home-agent captures and forwards the data to the mobile computer allowing the mobile computer to maintain its communication (see column 1 lines 50-63).

Regarding claim 2: the step of using program layers in the mobile-device and the home-device to establish and maintain the communication path is

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anticipated by the mobile-computer, home-agent, IP packets, registration unit, proxy DHCP, moving detection, care-of address and data-link modules. For an example see Fig.5, Fig.6 and column 1 lines 56-63)

Regarding claim 3: the step of maintaining the communication when the mobile-device moves from the first-communication-area with a first-subnet to a second-communication-area with a second-subnet is anticipated by Inoue. Fig. 1 and Fig.3 show that when the mobile computer (mobile-device) moves from its home network (first-subnet) to a visiting network (second-subnet), the mobile IP protocol provides a constant communication for the mobile computer through its home-agent (See column 3 lines 22-29).

Regarding claim 4: the step of assigning a home-address is anticipated by Inoue. The mobile computer continually uses a fixed address (home-address) assigned at a network (home-network) to which the mobile computer originally belongs even at visited sites (see column 2 lines 7-12).

The step of assigning a first-real address is anticipated by Inoue. When the mobile computer moves outside its own home network, the mobile computer acquires a care-of-address (first-real address) to be used at the visited site network using protocols such as DHCP (see column 6 lines 14-18).

The step of detecting the mobile-device's movement is anticipated by Inoue. When the mobile computer visits other networks it carries out a moving

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detection process and acquires a new care-of-address in the new network (see column 8 lines 5-11).

Regarding claim 5: the step of assigning a second-real-address is anticipated by Inoue. The mobile computer carries out a process by which it detects that it is visiting a new network followed by acquiring a new care-of-address (second-real-address) and communicating its new location with the home-agent (see column 6 lines 14-18).

Regarding claim 6: the step of generating the first and second real address from a DHCP server is anticipated by Inoue. The reference discloses that the mobile IP communications scheme provides a capability by which the mobile IP protocol will operate when the home and visiting networks use DHCP for assigning care-of-address (first and second real address) to the mobile computer (see column 2 lines 60-65 and column 6 lines 14-18).

Regarding claim 7: the step of maintaining the communication path when the mobile-device moves from a first-communication-area associated with a first-subnet to a second-communication-area with a second-subnet is anticipated by Inoue. The reference discloses a mobile computer management device for managing moving location information of a mobile computer which is capable of carrying out communications while moving among inter-connected networks (first and second subnets) by transferring packets destined to the mobile computer to

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a current location (second-subnet) of the mobile computer (see column 2 lines 66-67 and column 3 lines 1-6).

Regarding claim 8: the step of detecting movement into the second-communication-area by the mobile-device is anticipated by Inoue. The reference discloses a moving detection and care-of- address acquisition when a mobile computer moves from one network to another network (second-communications-area). For an example see column 8 lines 5-11.

Regarding claim 23: the article comprising computer-readable medium that stores instructions to assign a home-address associated with a home-device to a mobile device is anticipated by Inoue. The reference discloses a home agent (HA) 5 (home-device) that assigns a fixed address (home-address) to a mobile computer when the mobile computer is on its home network. (see column 1 lines 64-67, column 2 lines 1-11). Further, Inoue discloses that the home-agent is a router (see column 1 lines 50-51). It is known in the art that routers have computer-readable mediums such as a ROM or hard disks where the operating system and the configuration information of the router is stored.

The article that detects movement of the mobile-device into a second-communication-area is anticipated by Inoue. The reference discloses that when the mobile computer visits a network that is not its home network (second-communication-area), it carries out move detection by acquiring a new real address (care-of address) and registering the new address with its home-agent.

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The home agent updates its table by associating the mobile computer's new real address with its home-address that is stored on the home-agent (see Fig.5, Fig.6, and column 8 lines 5-11).

6. Claims 9-22 and 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Internet Engineering Task Force (IETF), RFC 2344, Reverse Tunneling for Mobile IP, published in May 1998.

Regarding claims 9, 13, 15, 18-19, and 25: generating a request from a mobile-device, the request comprising a request-layer including a home-address of the mobile-device and a server address is anticipated by RFC 2344. The reference discloses the packet format of a request (invoked by request layer such as a browser) by a mobile node (mobile-device) that comprises the source address (home-address of the mobile computer) and the destination address (the correspondent host's address). For an example see page 12, IP fields under section 5.1.2. Packet Header Format and Fields.

Encapsulating the request with a roaming-layer including the real-address of the mobile-device and a home-device-address is anticipated by RFC 2344. The reference discloses IP-in-IP encapsulation of the request in another header that includes the address of the foreign agent's care-of address (roaming layer that includes mobile computer's real address) as well as the home-agent's

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address (home-device-address). For an example see page 13, first paragraph, IP fields --encapsulating header --.

Communicating the encapsulated request to a home device is anticipated by RFC2344. The reference discloses that the packet is forwarded to the home agent after the encapsulation step. For an example see page 12, last line, page 13 first paragraph, IP fields --encapsulating header-- and IP fields --original header--.

Further, RFC 2344 discloses that the mobile node generates requests, encapsulates requests, uses IP addressing to send/receive encapsulated packets, communicate encapsulated packets with its home agent or other hosts, detects changes in its physical location, registers its new location with its home agent, and keeps its permanent home address. It is inherent that such device must have a processor to execute the tunneling, encapsulation, and registration routines; a memory to keep its operational configuration including its permanent home address, the tunneling and TCP/IP routines; and a network interface card to send/receive and communicate the tunneled packets to/from its home agent as well as correspondent hosts.

Regarding claims 10, 14, 16, 20, and 26: removing the roaming-layer from the encapsulated request-layer is anticipated by RFC 2344. The reference discloses that while the mobile computer's registration with the home agent is still

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in effect (the roaming layer), the home agent processes each reverse tunneled packet by de-capsulating it and recovering the original packet (see page 12 first paragraph).

The step of communicating the request from the home-device to a server based on server address is anticipated by RFC2344. The reference discloses that after the de-capsulation step, the home agent forwards (communicate) the original packet to the destination address or the correspondent host (server address) on behalf of its sender, i.e., the mobile node (see page 12 first paragraph).

Further, RFC 2344 discloses that the home-agent responds to registration requests it receives from the mobile nodes, keeps a record of each mobile node's permanent address and its care-of address, intercepts/tunnels data destined to each mobile node, and communicates requests issued by mobile nodes to the corresponding hosts on behalf of each mobile node. It is inherent that the home-agent must have a processor to process and execute program routines such as tunneling, encapsulation, and IP address assignments, a memory to store the home and the care-of address of each mobile node, and a network interface adapter to send/receive or communicate the tunneled and non-tunneled packets with the mobile node as well as correspondent hosts.

Regarding claim 11 and 27: the step of generating a response having the server address and the home device address is anticipated by RFC 2344. The reference discloses that while the registration is in effect, a home agent processes each reverse tunneled packet by decapsulating it, recovering the original packet, and then forwarding it on behalf of its sender (the mobile node) to the correspondent host's address (server). It is well known in the art that routers with network address translation (NAT) send requests, on behalf their subnet nodes, to remote hosts using their own address as the source address. Therefore, when the host receives a request (such as a web browser request), its responds (web server response i.e., response layer) includes the router address (the address where the request was originated from) as the destination address and its own address (server address) as the source address. Once the response reaches the NAT router, the router forwards the response to the subnet node by replacing its own address with the subnet node's address. (see page 12 first paragraph).

Communicating the response to the home-device is anticipated by RFC 2344. As stated above, the server generates a response to the request it received from the home agent, it sends the response back to the home agent (communicating)

Regarding claims 12, 17, 21, 22, and 28: the step of encapsulating the response with the real-address and home address of the mobile device is

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anticipated by RFC 2344. The reference discloses a forward tunnel, from the home agent to the mobile node, which is used for delivering packets destined to the mobile node (see page 3, section 1.1). The forward tunnel is symmetric with respect to the reverse tunnel and uses IP-in-IP encapsulation using the mobile node's home address and its care-of address (real address, roaming layer). (see page 4, section 1.2).

The step of communicating the encapsulated response is anticipated by RFC2344. The purpose of the forward tunnel is for delivering (communicating) the packets destined to the mobile node.

As stated in rationale for the rejection of claims 10, 14, 16, and 20, the home agent must have a memory in order to perform its functions.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Perinpanathan et al, U.S. Patent No. 6,144,671 discloses call redirection in a packet based communications network.
- La Porta et al, U.S. Patent No. 496,505 discloses packet tunneling optimization to wireless devices accessing packet-based wired networks.
- Leung, U.S. Patent No. 6,621,810 discloses mobile IP intra-agent mobility.
- Inoue et al, U.S. Patent No. 6,587,882 discloses mobile IP communication scheme using visited site or nearby network as temporal home network.
- Leung, U.S. Patent No. 6,195,705 discloses mobile IP mobility agent standby protocol.
- Inoue et al, U.S. Patent No. 6,501,767 discloses mobile IP communication scheme for supporting mobile computer move over different address space.
- IETF RFC 2002, IP Mobility Support, published October 1996 discloses IP mobility protocol for the Internet.
- IETF RFC 2003, IP encapsulation within IP, published October 1996 discloses encapsulation of datagram for mobile nodes.

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INQUIRY

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zahedian-Tajniki GholamReza whose telephone number is 703-305-0343. The examiner can normally be reached on 7:30 am - 4:30 pm.

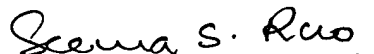
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 703-308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-746-9709.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-1113.

Zahedian-Tajniki, GholamReza



December 10, 2003


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